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EXPERIMENTAL FETAL DUCTAL CONSTRICTION AFTER MATERNAL INGESTION OF GREEN TEA IN LATE PREGNANCY

ACC Poster Contributions
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Background: Maternal ingestion of inhibitors of prostaglandin biosynthesis in late pregnancy may cause fetal ductal constriction. Green tea is rich in polyphenols, whose anti-inflammatory effects depend on prostaglandin inhibiton. This study was designed to test the hypothesis that experimental maternal intake of green tea in late pregnancy causes fetal ductus arteriosus constriction.

Methods: Twelve fetal lambs (pregnancy >120 days) were assessed before and after maternal administration of green tea to eight and water to four (controls) as the only source of liquid. After 1 week, all specimens exposed to green tea showed at autopsy dilated and hypertrophic right ventricles, not present in control fetuses.

Results: Histological analysis showed a significantly larger mean thickness of the medial avascular zone of the ductus arteriosus in fetuses exposed to green tea than in controls (747.6±214.6 µm versus 255.3±97.9 µm, p<0.001). Fetal Doppler echocardiography also showed evidences of constriction of ductus arteriosus in all fetuses exposed to maternal ingestion of green tea, with increase in mean systolic velocity (0.70 ±0.19 m/s to 0.92 ±0.15 m/s, P=0.001 and mean diastolic velocity (0.19±0.05 m/s to 0.31 ±0.01 m/s, P<0.001), decrease of pulsatility index (2.2±0.4 to 1.8±0.3, p=0.003) and increase of mean RV/LV ratio (0.89±0.14 to 1.43±0.23, P<0.001). In the four control fetuses receiving only water, there were no significant changes.

Conclusions: This study shows a cause and effect relationship between experimental maternal exposure of green tea and fetal ductus arteriosus constriction in late pregnancy.